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(54) Title: NON-CORROSIVE AMPHOTERIC SURFACTANTS AND METHOD OF WELL TREATMENT

(57) Abstract: A chloride free amphoteric surfactant obtained by reacting an amine with a carbonyl compound, the amphoteric surfactant being particularly useful as a foamer for treating gas wells to enhance production.

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/20597

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : C07C 205/00, 229/00; E21B 43/00; C09K 3/00

US CL : 562/553; 560/155; 166/309; 507/202, 240, 244

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 562/553; 560/155; 166/309; 507/202, 240, 244

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Please See Continuation Sheet

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4,587,025 A (HORODYSKY et al) 06 May 1986 (06.05.1986), column 1, line 35 - column 2, line 31.	1-4, 6
X	US 4,012,437 A (SHACHAT et al) 15 March 1977 (15.03.1977), column 1, line 49- column 4, line 18	1-6
X	US 5,902,784 A (HELLSTEN et al) 11 May 1999 (11.05.1999), column 3, line 46-51.	6
Y	US 4,775,489 A (WATKINS et al) 04 October 1988 (04.10.1988), column 1, lines 22-29, and Tables I and II.	7, 8

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

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"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

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**INTERNATIONAL SEARCH REPORT**

PCT/US03/20597

**Continuation of B. FIELDS SEARCHED Item 3:**

**EAST**

search terms: amphoteric, betaine, chloride free, chloride-free, acrylate, methacrylate, acrylic acid.